

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently Amended) A method for speeding up processing of a
2 | layout of an integrated circuit that has been divided into ~~cells~~ the cells, the method
3 | comprising:
4 determining if a target cell in the layout is identical to a preceding cell for
5 which there exists a previously calculated solution by comparing a hash code
6 created from the target cell with a hash code created from the preceding cell;
7 | wherein prior to determining if the target cell is identical to the preceding
8 | cell, the method further comprises performing an overlap removal operation on
9 | the target cell and the preceding cell.
10 if the target cell is identical to the preceding cell, using the previously
11 calculated solution as a solution for the target cell; and
12 otherwise, if the target cell is not identical to the preceding cell, processing
13 the target cell to produce the solution for the target cell.
- 1 2. (Currently Amended) The method of claim 1, wherein if the hash
2 code created from the target cell matches the hash code created from the
3 | preceding cell, the method further comprises comparing ~~the~~ a complete layout of
4 | the target cell with ~~a~~ the complete layout of the preceding cell to ensure that the
5 target cell is identical to the preceding cell.

1 3. (Original) The method of claim 1, wherein determining if the
2 target cell is identical to a preceding cell involves determining whether an area
3 surrounding the target cell is identical to an area surrounding the preceding cell.

1 4. (Cancelled)

1 5. (Currently Amended) The method of claim 1, wherein prior to
2 ~~considering said determining~~ the target cell, the method further comprises:
3 receiving a specification for the layout of the integrated circuit; and
4 dividing the layout into a plurality of cells, whereby each cell ~~can be~~is
5 independently processed.

1 6. (Currently Amended) The method of claim 5, further comprising
2 distributing the plurality of cells to a set of parallel processors so that the plurality
3 of cells ~~can be~~is processed in parallel.

1 7. (Original) The method of claim 1, wherein processing the target
2 cell involves performing one of:
3 model-based optical proximity correction (OPC);
4 rule-based optical proximity correction; and
5 phase shifter assignment for the target cell.

1 8. (Currently Amended) A computer-readable storage medium
2 storing instructions that when executed by a computer cause the computer to
3 perform a method for speeding up processing of a layout of an integrated circuit
4 that has been divided into cells, the method comprising:

5 determining if a target cell in the layout is identical to a preceding cell for
6 which there exists a previously calculated solution by comparing a hash code
7 created from the target cell with a hash code created from the preceding cell;
8 wherein prior to determining if the target cell is identical to the preceding
9 cell, the method further comprises performing an overlap removal operation on
10 the target cell and the preceding cell.
11 if the target cell is identical to the preceding cell, using the previously
12 calculated solution as a solution for the target cell; and
13 otherwise, if the target cell is not identical to the preceding cell, processing
14 the target cell to produce the solution for the target cell.

1 9. (Currently Amended) The computer-readable storage medium of
2 claim 8, wherein if the hash code created from the target cell matches the hash
3 code created from the preceding cell, the method further comprises comparing the
4 a complete layout of the target cell with the a complete layout of the preceding
5 cell to ensure that the target cell is identical to the preceding cell.

1 10. (Original) The computer-readable storage medium of claim 8,
2 wherein determining if the target cell is identical to a preceding cell involves
3 determining whether an area surrounding the target cell is identical to an area
4 surrounding the preceding cell.

1 11. (Cancelled)

1 12. (Currently Amended) The computer-readable storage medium of
2 claim 8, wherein prior to ~~considering~~ said determining the target cell, the method
3 further comprises:
4 receiving a specification for the layout of the integrated circuit; and

5 | dividing the layout into a plurality of cells, whereby each cell ~~can be~~is
6 | independently processed.

1 | 13. (Currently Amended) The computer-readable storage medium of
2 | claim 12, wherein the method further comprises distributing the plurality of cells
3 | to a set of parallel processors so that the plurality of cells ~~can be~~is processed in
4 | parallel.

1 | 14. (Original) The computer-readable storage medium of claim 8,
2 | wherein processing the target cell involves performing one of:
3 | model-based optical proximity correction (OPC);
4 | rule-based optical proximity correction; and
5 | phase shifter assignment for the target cell.

1 | 15. (Currently Amended) An apparatus for speeding up processing of
2 | a layout of an integrated circuit that has been divided into cells, the apparatus
3 | comprising:
4 | a comparison mechanism that is configured to determine if a target cell in
5 | the layout is identical to a preceding cell for which there exists a previously
6 | calculated solution by comparing a hash code created from the target cell with a
7 | hash code created from the preceding cell;
8 | wherein prior to determining if the target cell is identical to the preceding
9 | cell, the comparison mechanism is further configured to perform an overlap
10 | removal operation on the target cell and the preceding cell.
11 | a processing mechanism that is configured to produce a solution for the
12 | target cell;

13 wherein if the target cell is identical to the preceding cell, the target cell is
14 configured to use the previously calculated solution as the solution for the target
15 cell; and

16 wherein if the target cell is not identical to the preceding cell, the
17 processing mechanism is configured to process the target cell to produce the
18 solution for the target cell.

1 16. (Currently Amended) The apparatus of claim 15, wherein if the
2 hash code created from the target cell matches the hash code created from the
3 preceding cell, the comparison mechanism is configured to compare ~~the~~a
4 complete layout of the target cell with ~~the~~a complete layout of the preceding cell
5 to ensure that the target cell is identical to the preceding cell.

1 17. (Original) The apparatus of claim 15, wherein the comparison
2 mechanism is configured to determine whether an area surrounding the target cell
3 is identical to an area surrounding the preceding cell.

1 18. (Cancelled)

1 19. (Currently Amended) The apparatus of claim 15, further
2 comprising a partitioning mechanism that is configured to:
3 receive a specification for the layout of the integrated circuit; and to
4 divide the layout into a plurality of cells, whereby each cell ~~can be~~is
5 independently processed.

1 20. (Currently Amended) The apparatus of claim 19, further
2 comprising a distribution mechanism that is configured to distribute the plurality

3 | of cells to a set of parallel processors so that the plurality of cells can be
4 | processed in parallel.

1 21. (Original) The apparatus of claim 19, wherein the processing
2 mechanism is configured to perform one of:
3 model-based optical proximity correction (OPC);
4 rule-based optical proximity correction; and
5 phase shifter assignment for the target cell.

1 22. (Currently Amended) A mask to be used in an optical lithography
2 process, wherein the mask is created through a method that speeds up processing
3 of a layout of an integrated circuit that has been divided into cells, the method
4 comprising:
5 determining if a target cell in the layout is identical to a preceding cell for
6 which there exists a previously calculated solution;
7 wherein prior to determining if the target cell is identical to the preceding
8 cell, the method further comprises performing an overlap removal operation on
9 the target cell and the preceding cell.
10 if the target cell is identical to the preceding cell, using the previously
11 calculated solution as a solution for the target cell; and
12 otherwise, if the target cell is not identical to the preceding cell, processing
13 the target cell to produce the solution for the target cell.

1 23. (Currently Amended) An integrated circuit created through a
2 method that speeds up processing of a layout of an integrated circuit that has been
3 divided into cells, the method comprising:
4 determining if a target cell in the layout is identical to a preceding cell for
5 which there exists a previously calculated solution;

6 wherein prior to determining if the target cell is identical to the preceding
7 cell, the method further comprises performing an overlap removal operation on
8 the target cell and the preceding cell.
9 if the target cell is identical to the preceding cell, using the previously
10 calculated solution as a solution for the target cell; and
11 otherwise, if the target cell is not identical to the preceding cell, processing
12 the target cell to produce the solution for the target cell.

1 24. (Currently amended) A method for performing distributed mask
2 data preparation and model-based optical proximity correction, comprising:
3 dividing an input layout into a plurality of jobs, wherein each job involves
4 performing model based optical proximity corrections on a different portion of the
5 layout;
6 distributing the plurality of jobs across a plurality of processors; and
7 wherin, prior to distributing the input layout to the plurality of processors,
8 the method comprises performing an overlap removal operation on a portion of
9 the layout associated with a first job and a portion of the layout associated with a
10 second job.
11 performing model-based optical proximity correction on the plurality of
12 jobs in parallel on the plurality of processors.

1 25. (Currently Amended) The method of claim 24, further comprising:
2 determining if ~~a~~the portion of the layout associated with ~~a~~the first job is
3 identical to ~~a~~the portion of ~~a~~the layout associated with ~~a~~the second job for which
4 there exists a previously calculated solution by comparing a hash code created
5 from the portion of the layout associated with the first job with a hash code
6 created from the portion of the layout associated with the second job;

7 | if the determination indicates the respective portions of the ~~layout~~
8 | ~~are~~layouts are identical, using the previously calculated solution for the second job
9 | as a solution for the first job; and
10 | otherwise, if the determination indicates the respective portions of the
11 | layouts are not identical, performing model-based optical proximity correction on
12 | the portion of the layout associated with the first job to produce the solution for
13 | the first job.

1 | 26. (Original) The method of claim 25, wherein if the hash code
2 | created for the first job matches the hash code created for the second job, the
3 | method further comprises comparing the portion of the layout associated with the
4 | first job with the portion of the layout associated with the second job to ensure
5 | that the respective portions of the layout are identical.

1 | 27. (Cancelled)